

FY 2002 Budget Initiative
(Ocean Exploration and Research Initiative: Ocean Data)

Description: NESDIS proposes to capture and integrate multiple, large data streams from the ocean floor into NOAA's data systems and archives to facilitate access to and re-use of the data for ocean research and exploration. Targets of this capture include data from the current international Ocean Drilling Program (ODP) (ending in 2003), data from its successor, and if available, data from the proposed Deep Seafloor Observatories "Neptune" initiative in which NOAA is a partner. Once captured, these data will be integrated into NOAA's data systems where they will be fully available to researchers and permanently archived. Currently, the ODP is generating the most comprehensive research-quality database characterizing global ocean history ever created. We anticipate that its successor, beginning in 2003, will continue to expand and improve this data stream. ODP data provide unique and critical input to the understanding and nature of long-term climate variability. Data from the present phase need to be completed, archived, and made available to the public while the ODP database management system is still operational. Planning needs to begin now to integrate NOAA into data management for the next phase of drilling, and to play a critical data management role in the new Neptune initiative. The objective of this proposal is to ensure that sufficient resources are available to integrate crucial data from all these interagency and international sources into NOAA's environmental data management systems, where they will be properly archived, and made fully available to NOAA's climate and global change researchers, as well as to the scientific community.

Background: NOAA has been charged by the Stratton Commission to assume a leadership role in ocean research and exploration. A critical component of this leadership is preserving and providing access to data collected during ocean research and exploration. The volume and complexity of data collected during this ocean research and exploration is growing exponentially and NOAA's NESDIS needs additional resources to perform this vital task. The legacy of interagency and international ocean research and exploration programs hangs in the balance. NOAA's NGDC has a long-standing interagency agreement with the National Science Foundation to archive and make available data from the single largest international ocean exploration program ever launched, the ODP. NOAA, as a partner in the new Neptune initiative, needs to provide resources to fulfill its data management responsibilities for this interagency program, in agreement with data management policies and practices to be outlined in the upcoming National Academy of Sciences "Report on Seafloor Observatories" resulting from the January 2000 Ocean Studies Board Symposium. For more information on the Ocean Drilling Program, please refer to URL: <http://www.oceandrilling.org/> for more information about the Neptune initiative, please see URL: <http://www.neptune.washington.edu/>

Expected Outcome: Enhanced research capability for NOAA global change researchers and scientists worldwide through improved access to enormously important new and existing data from major interagency and international oceanographic research programs. Data from past phases of ocean drilling, (already available through NOAA/NGDC) have already proved plate tectonics, revolutionized stratigraphy, and drastically changed scientists' understanding of how earth works. Direct access to the entire suite of both ocean drilling and seafloor observatory data through integrated NOAA/NGDC and NODC data management will facilitate additional advances in global research.

Strategic Goals: This initiative addresses the "Predict and Assess Decadal to Centennial Change" element of the NOAA Strategic Plan. Specifically, to "understand the role of oceans in global change," and to "Update and improve global databases of decadal to millennial length time series of climatic change to provide a better baseline against which human-caused changes can be compared."

Cost Savings: If work begins now on capturing the ODP data stream, it will be a matter of completing data types in the database and writing scripts to extract it. If delayed, a multi-million dollar effort will be required to reconstruct or port the database to a new system before the data would be accessible. A delay in transfer of similar data from the predecessor of the ODP resulted in not only extra time and effort in data processing as well as data loss. If we begin working with the successor to the ODP now, by cooperating on transition teams and participating in data management planning, we can integrate our efforts with those of the new program for maximum cost savings and efficiency. Advance planning for capturing the anticipated data stream from the Neptune initiative will result in similar savings and prevent data loss.

Key Schedule of Milestones for Implementation:

- 1) FY03 - Completion of a parallel data system for ODP data, and population of that system with data. Replication of existing access software from ODP so that when the ODP rdbs is taken offline it will continue at NGDC. Active NGDC and NODC participation in database management panels and working groups to ensure integration into the next phase of ocean drilling and planning for management of seafloor observatories data.
- 2) FY04 - Construction of data systems at NGDC and NODC to accommodate new data streams from ocean drilling and seafloor observatories. Preliminary population of systems with available data. Scripts and

programs in place to produce a long-term archival copy of ODP and seafloor observatory data. Data archival accomplished.

- 3) FY05 - Population of new drilling and observatory data systems. Software in place for data access and archive.
- 4) FY06 - Continued active participation in the new drilling and observatory programs to proactively capture those data streams. Continued tuning and enhancement of systems to meet research needs.

Agency and Political Impacts: The ODP, and its successor are high profile, multi-national cooperative programs to acquire state-of-the-art marine geological and geophysical data from the deep sea floor costing millions of dollars per year. NOAA/NGDC, by interagency agreement with the US National Science Foundation, is responsible for providing a permanent archive for data from the current ODP and its predecessor, the Deep Sea Drilling Project. The ODP is administered by the Joint Oceanographic Institutions, Inc. (JOI), of which our Undersecretary for Oceans and Atmosphere, Dr. James Baker is a former director. In addition to being responsible for data generated by the ODP, NGDC is also the nominal US archive for marine geological and geophysical data collected with public funds, and operates the World Data Center for Marine Geology and Geophysics. With budget cuts and attrition, NGDC and NODC no longer have the staff, equipment, or other resources to integrate large sea floor data streams, including ODP or Neptune data, into its systems. NGDC and NODC do not even have the resources to actively participate in the data management planning processes for these programs. Politically, NOAA cannot afford to breach its interagency agreement with NSF, or to ignore its role as a World Data Center. These are literally the largest data streams ever created describing the world's oceans, their history, and their impact on the environment. NOAA is a full partner in the new Neptune initiative (Neptune: A Fiber Optic "Telescope" to Inner space). Neptune is expected to generate a huge stream of data including marine geologic observations and biological, chemical and physical data, as well.

Performance Measures: 1) NGDC fulfills its obligation to provide an archive of data from the existing ODP in accordance with interagency agreements. 2) NGDC and NODC actively participate in planning for new phases of drilling and seafloor observatories to ensure good data management practices, and 3) NGDC and NODC successfully incorporate these new data streams, providing access and archival.

Point of Contact: Dr. George F. Sharman, NGDC
Chief, Marine Geology and Geophysics Division, and
Director World Data Center for Marine Geology and Geophysics, Boulder

Phone Number: 303-497-6345
Email: gsharman@ngdc.noaa.gov

Estimated cost: NGDC (for access, management, and archival of geological and geophysical data)~ \$1M/year, 5 years
NODC (for access, management, and archival of oceanographic data) ~ \$340K/year, 5 years

	<u>FY</u> <u>02</u>	<u>FY</u> <u>03</u>	<u>FY</u> <u>04</u>	<u>FY</u> <u>05</u>	<u>FY</u> <u>06</u>	<u>To</u> <u>Complete</u>	<u>Total</u>
Labor	\$405K	\$426K	\$450K	\$474K	\$498K	--	\$2253K
Benefits	\$87K	\$75K	\$96K	\$99K	\$105K	--	\$462K
Travel	\$30K	\$30K	\$30K	\$30K	\$30K	--	\$150K
Contracts	\$500K	\$500K	\$500K	\$450K	\$400K	--	\$2350K
Supplies	\$150K	\$60K	\$30K	\$30K	\$30K	--	\$300K
Equipment	\$200K	\$135K	\$60K	\$60K	\$60K	--	\$515K
Communications	--	--	--	--	--		
Other							
Total	\$1372K	\$1226K	\$1166K	\$1143K	\$1123K		\$6,030,000
FTE's	6 new FTE's in FY02, continuing						